
आलू का भंडारण — दिशानिर्देश

(पहला पुनरीक्षण)

Storage of Potatoes — Guidelines

(First Revision)

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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Fruits, Vegetables and Allied Products Sectional Committee had been approved by the Food and Agriculture Division Council.

To ensure fuller utilization of perishable foodstuffs, such as fruits and vegetables, it is necessary that they should be preserved under such conditions as to maintain their fitness for human consumption over a period of time. Preservation by refrigeration is one of the very important means of preserving foodstuffs. To provide guidelines for the rapidly developing cold storage industry in the country for storing various fruits and vegetables on scientific lines, a series of Indian Standard guides based on corresponding ISO Standards are being issued. It is hoped that these guides stipulating the conditions to be maintained for different fruits and vegetables would prove helpful in stimulating more intensive research, better administration of cold storages and in preventing avoidable wastage of foodstuffs.

The standard was first published in 1972. In this revision following modifications have been carried out :

- a) maximum height of tuber layer for storage is reduced to 2.5 m,
- b) optimum storage temperature has been changed to between 2°C to 4°C, and
- c) for potatoes intended for certain industrial processing, the optimum temperature has been changed to between 8°C to 12°C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

STORAGE OF POTATOES — GUIDELINES

(*First Revision*)

1 SCOPE

1.1 This standard describes conditions for successful cold storage of potatoes pertaining to the species *Solanum tuberosum* Linnaeus intended for consumption, either directly or after industrial processing.

1.2 This standard does not apply to seed potatoes.

2 CONDITIONS OF HARVESTING AND PUTTING INTO STORAGE

2.1 Harvesting

The potato tubers should be harvested mature. The skin should be firm, should not peel off under mere rubbing and should be free from cracks.

2.2 Quality Characteristics for Storage

The lots to be stored should not contain greater proportions of tubers which are bruised, frozen, withered, rotten or punctured by insects or affected by fungal decay, or which have sprouted. This may be achieved by preliminary sorting, which needs to be carried out with care since it frequently causes bruises which may be more detrimental to potatoes during storage than the presence of these defects. Defective tubers should not be stored.

2.3 Putting into Storage

The potatoes should be put into the store as soon as possible after harvesting, and the temperature around the tubers should be lowered as quickly as possible. Potatoes should be pre-cooled to remove field heat prior to storage.

2.4 Method of Storage

The potatoes may be stored in containers, boxes, stacking trays, bags, or in bulk. When they are stored in bulk or in bags and no means are provided to prevent the lower layers from being crushed by the upper layers, the height of the tuber layer should be specified according to the hardness of the variety; the quality of the lot and the conditions of the air-circulating device; the maximum height recommended is 2.5 m. It is prudent to leave a distance of approximately 30 cm between the top of the cases or heap and the ceiling, to permit free circulation of air.

2.4.1 Ware potatoes should be stored away from the light.

3 OPTIMUM CONDITIONS OF STORAGE

3.1 Temperature

The optimum temperature is between 2°C to 4°C.

However, in the case of potatoes intended for certain industrial processing operations, such as 'crisps', French fries and low sugar potatoes, it is recommended that the temperature be raised to between +8°C to 12°C, depending upon the variety.

3.2 Relative Humidity

The relative humidity for storage of potatoes should be between 85 and 95 percent.

3.3 Air Circulation

The containers and the way in which they are stacked should permit free circulation of air.

3.3.1 Mixing — Mixing of air in closed circuit renders temperature and relative humidity uniform. An air-circulation ratio of between 20 and 30 is recommended.

3.3.2 Air Change — Potatoes stored in densely packed form have the effect of producing an accumulation of carbon dioxide and of heat due to respiration. This should be removed by changing the atmosphere.

3.3.2.1 When artificial cooling is used, with closed-circuit mixing, the atmosphere should be changed at regular intervals throughout the storage period. A flow of 100 m³ per cubic meter of product per hour is recommended.

3.4 Storage Life

The expected storage life is 8 months in refrigerated storage.

3.5 Operations at the End of the Storage Period

Progressive reheating to +10°C is necessary at the end of the storage period, before the sorting and packing operations are carried out. In the case of potatoes intended for certain industrial processing operations, for example, of the 'crisps', French fries and low sugar potatoes, it is recommended that the temperature should be progressively raised to 14°C during the last weeks of storage.

4 ADJUNCTS AND OTHER PRESERVATION PROCESSES

4.1 In cases where the temperature is above +8°C, suitable measures should be taken to prevent sprouting that may begin.

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